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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/772,586 | 02/06/2004 | Shunpei Yamazaki | 740756-2707 | 2329 |
| 22204 | 7590 | 04/06/2007 | EXAMINER | |
| NIXON PEABODY, LLP | | | NGUYEN, THANH T | |
| 401 9TH STREET, NW | | | ART UNIT | PAPER NUMBER |
| SUITE 900 | | | | |
| WASHINGTON, DC 20004-2128 | | | 2813 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 04/06/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/772,586 | YAMAZAKI, SHUNPEI | |
| | Examiner | Art Unit | |
| | Thanh T. Nguyen | 2813 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 13 December 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
 4a) Of the above claim(s) 7-12 and 19-24 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-6, 13-18 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In view of the appeal brief filed on 12/13/06, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (U.S. Patent Publication No. 2003/0132987) in view of Tsutsui (U.S. Patent Publication No. 2001/0027013) and further in view of Mori et al. (JP Patent No. 2000/169977).

Referring to figures 1-67, Ogawa teaches a method for producing a semiconductor device comprising:

forming wiring using first solution ejector for ejecting a conductive material (see paragraph# 107, 232),

forming a resist mask on the wiring (see paragraphs# 58, 109, 234), and
etching the wiring using an atmosphere plasma device having linear plasma generator
using the resist mask as a mask (see paragraph# 184).

Regarding to claims 4, 16, the solution ejector has one or more of solution ejection ports (57, paragraph# 210).

Regarding to claims 5, 17, a wiring material, or a resist, or the like is ejected using the solution ejector a substrate is heated (see paragraph# 201/227).

However, the reference does not clearly teach forming the resist mask layer by using solution ejector, etching the wiring using an atmospheric-pressure plasma device having a plurality of linearly-arranged plasma generators, and etching the wiring layer at the atmospheric pressure or near-atmospheric pressure.

Tsutsui teaches in paragraph# 24 a method of forming a resist mask by dropping liquid solution of photoresist material on a conductive layer is known as spin coating process.

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would forming the resist mask layer by using solution ejector

in process of Ogawa as taught by Tsutsui because the process is known in the art to form the photoresist film with no deformation occur.

Mori et al. teaches etching the wiring (metal layer) by using high frequency plasma under atmospheric pressure (see abstract, meeting claims 1-3, 5, 13-15, 18).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would etch the wiring layer by using high frequency plasma under atmospheric pressure in process of Ogawa as taught by Mori et al. because the process would enable to etch the metal easily.

It would be obvious to one ordinary skill in the art to etch the wiring layer using a plurality of linearly-arranged plasma generators with the same process as using in a linearly-arrange plasma generators to etch the wiring layer since it is well-known in the art to repeat the same process for multiple effect. See St. Regis paper, Co. V. Bemis Co. Inc. 193 USPQ 8, 11 (7th circuit 1977) (meeting claims 13-15).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would etch the wiring using an atmospheric-pressure plasma device having a plurality of linearly-arranged plasma generators in process of Ogawa because the process would provide a uniform etching in the wiring layer.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference

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claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-6, 13-18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of copending Application No. 10/771,421; 10/771,277; 10/772,419. Although the conflicting claims are not identical, they are not patentably distinct from each other because each of these copending applications teach a method for forming wiring using a first solution ejector for ejecting a conductive material, forming a resist mask on the wiring using a second solution ejector, and etching the wiring using an atmospheric-pressure plasma device having a linear plasma generator using the resist mask as a mask.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments with respect to claims 1-6, 13-18 have been considered but are moot in view of the new ground(s) of rejection.

Applicant contends that Ogawa does not teach forming a resist on wiring using a solution ejection. In response to applicant that Tsutsui teaches in paragraph# 24 a method of forming a

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resist mask by dropping liquid solution of photoresist material on a conductive layer is known as spin coating process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairdirect.uspto.gov>. Should you have questions on access to thy Private PAIR system, contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Carl Whitehead (SPE)



CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800